24. (New) The method claim 23, wherein the probe message is generated according to an Internet Protocol, and the plurality of communication paths are established between a source router and a destination router that is associated with the predetermined location.

25. (New) The method claim 24, wherein the probe message and the reply message transmissions are based on a common source IP address and destination IP address that identifies ~~the communication~~ path that transports the data packet.

REMARKS

By this amendment, claims 1-25 are pending, in which claims 1-23 are amended, and claims 24 and 25 are newly added. Care was exercised to avoid the introduction of new matter.

The Office Action mailed June 4, 2002 rejected claims 1-7, 9-20, 22, and 23 as obvious under 35 U.S.C. § 103 based on *Mirek et al.* (US 5,878,032) in view of *Diebboll et al.* (US 5,886,643). Also, claim 21 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

In response to the indefiniteness rejection, Applicants have amended claim 21 to delete "said in-band communication channel."

First, Applicants acknowledge with appreciation the courtesy of an interview granted to Applicants' attorney on July 16, 2002 at which time the subject invention was explained in light of Applicants' disclosure, the outstanding issues were discussed, and arguments substantially as hereinafter developed were presented. During the interview, which was also attended by SPE Chau T. Nguyen, Applicants' representative explained how operationally the *Mirek et al.* system, which is an Asynchronous Transfer Mode (ATM) network, differs from the claimed invention. Examiner D. Trinh and SPE Nguyen indicated that amendment of the claim language may be

necessary to provide better distinction. Thus, no formal agreement was reached, pending the Examiner's detailed reconsideration of the application upon formal submission of a response to the present Official Action.

To support its obviousness rejection, the Office Action, on page 2, item 3, relies on *Mirek et al.*, citing col. 4, lines 7-8, 52-53 and Equation 1, for disclosure of a measurement cell to determine transfer delay *Td*.

Mirek et al. discloses (per the Abstract) an approach for continuously monitoring parameters of delay using measurement cells, i.e. test cells, test frames, performance management ATM OAM cells, or performance management frame relay frames. These cells or frames contain a timestamp indicating the time a cell or frame is sent and a delay value indicating a difference between reception and transmission times of the cell or frame. *Mirek et al.* also discloses, on col. 1, lines 41-47, to support performance and fault management functions of VPC/VCC (virtual path connection/virtual channel connection) in ATM networks, OAM cells are defined to carry operation information such as error checks, node identifiers (IDs), fault descriptions, loopback indications, timestamps, etc. OAM cells are identified in the ATM cell header as separate from user cells.

As evident from the above passages (and FIG. 1), Applicants note that ATM is a connection-oriented technology such that the OAM cells are ensured to traverse the same VPC/VCC connection as that of data cells, whereby the delay would represent that experienced by the data cells. Accordingly, *Mirek et al.* does not employ multiple communication paths (i.e., VPC/VCC connections) to reach Node B of FIG. 1, shown in the reference, as the selected VPC/VCC connection is established for the duration of the communication session between Node A and Node B. That is, Node B is not reachable from Node A by any other VPC/VCC connections for transmission of the OAM cells. Traversal of a packet over the same

communication path in a router-based network is not readily achievable (which is recognized as problematic in Applicants' specification, for example, on paragraph 9). Consequently, *Mirek et al.* cannot disclose use of a router, which is why the Office Action has to acknowledge that "Mirek does not explicitly disclose that node A is a router" (page 2, item 3).

By contrast, Amended independent claim 1, 14, 22, and 23 recites that a "packet traverses **a particular communication path among a plurality of communication paths to the destination node.**" Independent claim 9, as amended, recites "sending said probe message **over a communication path among a plurality of communication paths** for transporting a packet to **a destination node that is reachable by any one of the plurality of communication paths.**" Claim 14 now recites sending "a probe message over a communication path that transports a packet to **a destination node that is reachable by any one of the plurality of communication paths.**" Amended claim 22 recites "sending a probe message **over one of the plurality of communication paths to the destination router.**" Independent 24 now recites sending a "probe message over **a communication path** that transports a data packet **among a plurality of communication paths** of a network."

The secondary reference of *Diebboll et al.*, which is relied on by the Office Action for a supposed teaching that a probe could be part of a router, cannot meet, individually or in combination with *Mirek et al.*, the above features of 1, 14, 22, and 23. Furthermore, pursuant to MPEP § 2143.02, the Examiner must consider whether the modified system would have a reasonable expectation of success to meet his burden of showing *prima facie* obviousness. The modification as suggested by the Office Action would require technically altering all the connection-orient protocols of the ATM network of *Mirek et al.* to effect a connectionless router-based design of *Diebboll et al.* Given the significant differences between connection-orient and

connectionless technologies, there can be no reasonable expectation of the grave modifications that the combination suggests.

Accordingly, withdrawal of the rejection of claims 1, 14, 22, and 23 is respectfully urged. Because dependent claims 2-8, 10-13, and 15-21 depend correspondingly from independent claims 1, 14, 22, and 23, they are also in condition for allowance for at least the reasons for the allowability of claims 1, 14, 22, and 23.

New claims 24 and 25 depend from amended independent 23, and thus, should be indicated as allowable for at least the reasons argued for the allowability of claim 23.

Therefore, the present application, as amended, overcomes the objections and rejections of record and is in condition for allowance. Favorable consideration is respectfully requested. If any unresolved issues remain, it is respectfully requested that the Examiner telephone the undersigned attorney at (703) 425-8508 so that such issues may be resolved as expeditiously as possible.

Respectfully Submitted,

DITTHAVONG & CARLSON, P.C.

10/4/02
Date

Phouphanomketh Ditthavong
Attorney/Agent for Applicant(s)
Reg. No. 44658

10507 Braddock Road
Suite A
Fairfax, VA 22032
Tel. (703) 425-8508
Fax. (703) 425-8518

APPENDIX

1. (Twice Amended) A probing router, comprising:

a routing engine configured to forward [packets] a packet to a destination node of a communications network, wherein the packet traverses a particular communication path among a plurality of communication paths to the destination node [via a communication network port]; and

a probe mechanism configured to generate and send a probe message [through said communication network port to the communication network at a time T1] over [a communication channel] the particular communication path traversed by the packet for determination of statistics of the communications network.

2. (Twice Amended) The probing router of Claim 1, wherein the probe message is sent at time T1 and said probe mechanism is configured to receive a reply probe message at a second time, T2, sent by [a] the destination [router] node in response to receiving said probe message with a remote latency indicator therein so that service level agreement characteristics may subsequently be derived by comparing T1, T2 and the remote latency indicator.

3. (Twice Amended) The probing router of Claim 2, further comprising:

a memory [,

wherein the probe mechanism is] configured to [identify and] store [in the memory] the service level agreement characteristics identified by the probe mechanism.

4. (Twice Amended) The probing router of Claim 1, wherein [said] the particular communication path supports [communications channel includes] a tunnel channel in a virtual private network.

5. (Twice Amended) The probing router of Claim 2, wherein said reply probe message includes a data field [configured to hold] specifying the remote latency indicator that represents an amount of time between when said destination [router] node received said probe message and when said destination [router] node sent said reply probe message.

6. (Twice Amended) The probing router of Claim 1, wherein a polling interval at which said probe mechanism sends said probe message [comprises a remotely] is programmable [setting].

9. (Twice Amended) A computer-readable medium carrying one or more sequences of one or more instructions for sending a probe message, the one or more sequences of one or more instructions including instructions which, when executed by one or more processors, cause the one or more processors to perform the steps of:

generating a probe message [via a source probing router]; and

sending said probe message [via said source probing router] over [a communication channel] a communication path among a plurality of communication paths for transporting a packet to a destination node that is reachable by any one of the plurality of communication paths.

11. (Amended) The computer-readable medium according to Claim 10, wherein when the one or more instructions are executed by the one or more processors cause the one or more processors to further perform the steps of:

receiving at a second time, T2, a reply probe message sent from [a] the destination [probing router] node; and

extracting a remote latency indicator from said reply probe message, said remote latency indicator representing an amount of time between when said destination probing router received said probe message and when said destination [probing router] node sent said reply probe message.

12. (Twice Amended) The computer-readable medium of Claim 11, wherein when the one or more instructions are executed by the one or more processors cause the one or more processors to further perform the step of:

calculating service level agreement statistics associated with the particular communication [channel] path based on T1, T2, and said remote latency indicator [being part of a virtual private communication network [from T1, T2 and said remote latency indicator].

13. (Twice Amended) The computer-readable medium of Claim 9, wherein [said] the plurality of communication [channel] paths [includes a communication channel of] is supported by a virtual private network.

14. (Twice Amended) A communication system for gathering traffic statistics, comprising:

a probing router configured to generate and send a probe message and prepare performance statistics information;

a probe poller processor configured to receive performance statistics information collected by a probing router that generates and sends a probe message [through a communication channel] over a communication path that transports a packet to a destination node that is reachable by any one of the plurality of communication paths; and

a reporting mechanism coupled to said probe poller processor and configured to present a compilation of said performance statistics information for comparison against performance thresholds of a service level agreement.

15. (Twice Amended) The system of Claim 14, wherein [said] the plurality of communication [channel] paths is [included in] supported by a virtual private network.

16. (Twice Amended) The system of Claim 14, wherein said probing router is [included] located within a customer premise.

18. (Twice Amended) The system of Claim 14, wherein said reporting mechanism is configured to report said performance statistics [on an Internet web site] via a web interface.

21. (Twice Amended) The system of Claim 14, wherein said probe poller processor is configured to calculate at least one of an availability and a packet loss rate of [said in-band communication channel] the communication path from said performance statistics information.

22. (Twice Amended) A probing router, comprising:

means for routing data packets to a destination router reachable over a plurality of communication paths within a virtual private network;

means for generating and sending a probe message [through a communication channel of the virtual private network] over one of the plurality of communication paths to the destination router, the one communication path transporting the data packets; and

an enclosure that houses said means for routing and said means for preparing and sending.

23. (Twice Amended) A method for collecting network performance statistics, comprising the steps of:

generating a probe message [with a probing router] for determining propagation time to a predetermined location; and

sending said probe message [via said probing router over a communication channel] over a communication path that transports a data packet among a plurality of communication paths of a network, wherein the predetermined location is reachable via any one of the plurality of communication paths [; and], wherein the propagation time is measured based on a reply message to the probe message.

[measuring a propagation time for said probe message to reach a predetermined location.]

24. (New) The method claim 23, wherein the probe message is generated according to an Internet Protocol, and the plurality of communication paths are established between a source router and a destination router that is associated with the predetermined location.

25. (New) The method claim 24, wherein the probe message and the reply message transmissions are based on a common source IP address and destination IP address that identifies the communication path that transports the data packet.